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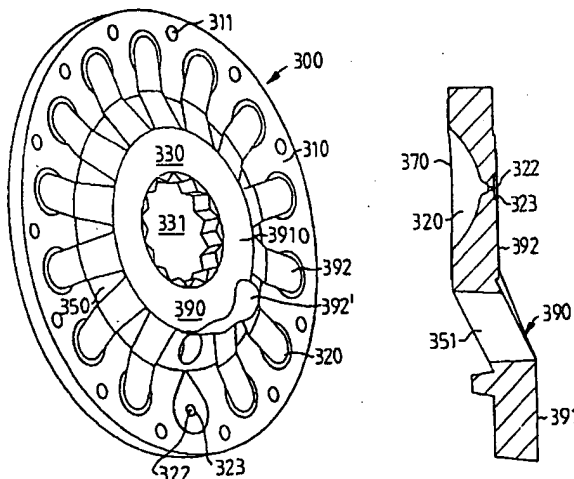
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- (21) International Application Number: PCT/SE00/01514 (81) Designated States (*national*): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
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- (71) Applicant (*for all designated States except US*): PHARMACIA & UPJOHN AB [SE/SE]; S-112 87 Stockholm (SE).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): BENNWIK, Percy [SE/SE]; Nämndemansvägen 19, S-132 36 Saltsjö-Boo (SE). TÖRNSTEN, Jonas [SE/SE]; Frodegatan 36, S-753 27 Uppsala (SE).
- Published:  
— With international search report.
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: LIQUID DELIVERY CONTAINER



(57) Abstract: Pressurisable container for storing and ejecting liquid, the container comprising a) a front wall having or surrounding a cavity corresponding to the form of an open vessel, b) an opening in the front wall adapted for ejection of the liquid from the container, said opening defining a container axis, c) optionally a sealing over the opening adapted for temporary use, and d) a rear wall closing and sealing the open part of the front wall vessel to confine a space for the liquid in the container, the rear wall running at least partially perpendicular to the container axis and being displaceable or deformable for movement towards the opening to pressurize the container liquid. The front wall is substantially rigid in relation to the rear wall, the rear wall before pressurizing the container is substantially flat or substantially single-curved and the rear wall is deformable under stretching to substantially fill out the container cavity. The invention also relates to methods for container manufacture and devices and methods for ejecting liquid from the containers.

WO 01/08732 A1

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/01514

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61M 11/00, A61F 9/00, B05B 9/08, B65D 83/00  
According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A61F, B05B, B65D, A61M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0832568 A2 (UNICE INTERNATIONAL LIMITED), 1 April 1998 (01.04.98), column 6, line 11 - line 34; column 7, line 11 - column 8, line 48, figures 1-3, claim 12, detail 18	1-4,6-8,10, 27-28,30, 33-35,38, 44-48,52-57
Y	--	5,9,29,41,43
X	EP 0139855 A1 (PLANTORGAN WERK HEINRICH G.E. CRISTENSEN KG), 8 May 1985 (08.05.85), figure 11, claims 6,9	1-4,7,28-29, 33-35,44, 52-57
Y	--	5,9,29,41,43
Y	US 4433797 A (GALIA), 28 February 1984 (28.02.84), column 4, line 23 - line 27, figures 1-2, details 16,54	5,9,29,41,43
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Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

9 November 2000

Date of mailing of the international search report

20 - 11 - 2000

Name and mailing address of the ISA/  
Swedish Patent Office  
Box 5055, S-102 42 STOCKHOLM  
Facsimile No. +46 8 666 02 86

Authorized officer

Marianne Dickman / JAN  
Telephone No. +46 8 782 25 00

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/01514

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5709202 A (LLOYD ET AL), 20 January 1998 (20.01.98), column 20, line 20 - line 42; column 26, line 33 - line 39; column 27, line 28 - line 39, column 28, line 52 - line 59; figures 2-3,5-6, 9-10 --	40,42,64, 66-73,78-80, 84
Y	US 5516008 A (RABENAU ET AL), 14 May 1996 (14.05.96), column 3, line 56 - line 61; column 5, line 45 - line 55 --	11-18,31-32, 36-37,39, 49-51,58-63
X	WO 9606581 A1 (R.P. SCHERER CORPORATION), 7 March 1996 (07.03.96), page 18, line 4 - line 14; page 20, line 12 - page 21, line 5, figure 18 --	64-68,70-71, 74-77,79-80, 83
Y	page 3, line 35 - page 4, line 2; page 15, line 10 - line 36, claim 1, detail 108 --	11-18,31-32, 36-37,39, 49-51,58-63
Y	WO 9723177 A1 (R.P. SCHERER LIMITED), 3 July 1997 (03.07.97), page 3, line 20 - line 21 --	58
A	GB 2255918 A (TECHNOLOGY LIMITED), 25 November 1992 (25.11.92), page 6, line 3 - page 7, line 31, figure 1, abstract --	1-18,27-48, 52-68,84, 90-92
A	US 4522622 A (PERRY ET AL), 11 June 1985 (11.06.85), figures 1-3 --	1,5,8-9, 14-23,40-43
A	WO 9600050 A1 (R.P. SCHERER CORPORATION), 4 January 1996 (04.01.96), figure 6, abstract --	1-3,27-43, 54-63

A	US 1751341 A (M LEISSE), 18 March 1930 (18.03.30), figures 1-3	1,27,30
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A	US 2649995 A (N. MUSKIN), 25 August 1953 (25.08.53), column 3, line 11 - line 19	27,30
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A	US 4236516 A (NILSON), 2 December 1980 (02.12.80), figures 1-2	1,54,64
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A	US 5429280 A (BAUER ET AL), 4 July 1995 (04.07.95), figure 8	5,9,29,41,43
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A	US 4072249 A (B. EKENSTAM ET AL), 7 February 1978 (07.02.78), column 4, line 32 - line 44; column 5, line 50 - line 52; column 7, line 11 - line 14	1,14,54
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A	GB 2246555 A (CHRISTOPHER, G.), 5 February 1992 (05.02.92), abstract	14
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A	US 5622166 A (R.F. EISELE ET AL), 22 April 1997 (22.04.97), figures 2-4	14-23
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A	US 5349947 A (M.T. NEWHOUSE ET AL), 27 Sept 1994 (27.09.94), column 9, line 30 - column 10, line 6, figures 5-12	14-20,24-25, 49-51,64-77, 79,81
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A	US 5415162 A (R.A. CASPER ET AL), 16 May 1995 (16.05.95), figure 4	24-26
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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/01514

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US 5221050 A (A. JEFFRIES ET AL), 22 June 1993  
(22.06.93), column 1, line 29 - line 32; column 5,  
line 4 - line 40

64-66,74-76

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/SE00/01514

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

### Invention 1

Claims 1-13, 27-48, 52-63, 90-92. Relates to a container for storing and ejecting liquid (claims 1-13, 27-43), a method for manufacture of such container (claims 44-48, 52-53), a method for ejecting liquid from such container (claims 54-63, 92), a device for ejecting liquid from such container (claims 90-91).

.../...

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☒ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Intern. application No.  
PCT/SE00/01514

## Box II

### Invention 2

Claims 14-26, 49-51. Relates to connected containers forming a multipel container unit (claims 14-26), a method for manufacture of such multipel container unit (claims 49-51).

### Invention 3

Claims 64-89. Relates to a device for ejecting liquid from a container.

INTERNATIONAL SEARCH REPORT  
Information on patent family members

03/10/00

International application No.

PCT/SE 00/01514

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